

Wisconsin Checklist Project

2004

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Abstract

During 1983-2004, project cooperators submitted 88,367 weekly checklists of birds they saw or heard. During this period the frequency of occurrence decreased significantly for 50 species, increased significantly for 85 species, exhibited a u-shaped trend for 3 species, and an inverted u-shaped trend for 42 species. Reporting frequencies were classified as stable for 86 species.

Background

The Wisconsin Checklist Project (WCP) is a volunteer monitoring program that provides information on annual, seasonal, and geographic variation in abundance for 296 species of birds that occur in Wisconsin. The project originated in 1982 at the University of Wisconsin and has been administered by the Wisconsin Department of Natural Resources (DNR) since 1989. Data from 1983-96 were used to estimate relative abundance, geographic distribution, migration chronology, and population trend (Temple, Cary, and Rolley 1997). Currently, the project is primarily used to monitor long-term changes in abundance.

Methods

Checklist project volunteers were recruited primarily from the Wisconsin Society for Ornithology; an educational and scientific organization dedicated to the study of Wisconsin birds. Participants were requested to maintain careful records of the bird species detected each week. Participants recorded their name, the date of the Sunday that began the week, the county in which they birded, whether they "actively" searched for birds during the week, and the bird species detected, on computer readable "bubble forms". Completed forms were returned to the DNR's Research Center in Monona, Wisconsin. Upon receipt of completed forms, a new supply of forms was mailed to project cooperators. Completed forms were scanned by the University of Wisconsin's Testing and Evaluation Services.

Prior to 1997, checklist forms listed 266 species. Thirty species were added to the checklist in 1997. The percentage of checklists on which a species is recorded (reporting frequency) is used as an index of abundance. Reporting frequencies during 1983-2004 of the original set of 266 species were examined for linear and quadratic trends using regression analysis. Checklists from all regions of the state and from all months of the year were pooled in these analyses. Trends were classified as stable if regression significance levels were ≥ 0.05 .

Results

Since initiation of the Wisconsin Checklist Project, 437 project cooperators have submitted 91,051 checklists. Only 88,367 checklists for the period 1983-2004 were analyzed for this report. A total of 2,496 checklists have been submitted for years prior to 1983 and 188 checklists have been received to date for 2005. The number of cooperators contributing checklists and the number of checklists submitted per year have declined since the start of the project with the most rapid decline during the mid 1980s (Table 1). With the decline in number of cooperators, both the percentage of checklists on which contributors indicated that they

actively searched for birds and the mean number of species recorded per checklist tended to increase during the mid 1980s through early 1990s. The mean number of species reported and the percentage of active checklists have been fairly stable since the early 1990s.

Significant linear declines in percent occurrence on checklists during 1983-2004 were noted for 50 species (Table 2). These were Red-necked Grebe, American Bittern, Least Bittern, Long-tailed Duck, Red-breasted Merganser, Broad-winged Hawk, Gray Partridge, Sharp-tailed Grouse, Killdeer, Spotted Sandpiper, Upland Sandpiper, Ruddy Turnstone, Wilson's Snipe, American Woodcock, Common Tern, Black Tern, Rock Pigeon, Yellow-billed Cuckoo, Barred Owl, Common Nighthawk, Whip-poor-will, Chimney Swift, Belted Kingfisher, Red-headed Woodpecker, Northern Flicker, Eastern Kingbird, Horned Lark, Purple Martin, Bank Swallow, Barn Swallow, Gray Jay, Blue Jay, Boreal Chickadee, Gray-cheeked Thrush, Brown Thrasher, European Starling, Louisiana Waterthrush, Eastern Towhee, Field Sparrow, Vesper Sparrow, Bobolink, Eastern Meadowlark, Western Meadowlark, Rusty Blackbird, Brewer's Blackbird, Common Grackle, Purple Finch, Red Crossbill, Evening Grosbeak, and House Sparrow.

Reporting frequencies increased significantly during 1983-2004 for 85 species. Species exhibiting highly significant ($P < 0.001$) increases were Great Blue Heron, Great Egret, Canada Goose, Mallard, Gadwall, Hooded Merganser, Turkey Vulture, Osprey, Bald Eagle, Northern Harrier, Sharp-shinned Hawk, Cooper's Hawk, Red-tailed Hawk, Merlin, Peregrine Falcon, Wild Turkey, Sandhill Crane, Ring-billed Gull, Mourning Dove, Northern Saw-whet Owl, Ruby-throated Hummingbird, Red-bellied Woodpecker, Downy Woodpecker, Hairy Woodpecker, Pileated Woodpecker, Alder Flycatcher, Eastern Phoebe, American Crow, Common Raven, Black-capped Chickadee, Tufted Titmouse, White-breasted Nuthatch, Sedge Wren, Blue-gray Gnatcatcher, Eastern Bluebird, Warbling Vireo, Red-eyed Vireo, Blue-winged Warbler, Northern Parula, Black-throated Green Warbler, Ovenbird, Mourning Warbler, Scarlet Tanager, Northern Cardinal, Rose-breasted Grosbeak, Chipping Sparrow, Clay-colored Sparrow, White-throated Sparrow, Dark-eyed Junco, Orchard Oriole, and American Goldfinch.

Forty-two species had inverted u-shaped trends in reporting rates (increasing during the late 1980s to mid 1990s and subsequently decreasing). These were Pied-billed Grebe, Horned Grebe, Cattle Egret, Black-crowned Night-heron, Snow Goose, Wood Duck, American Black Duck, Northern Pintail, American Wigeon, Canvasback, Ring-necked Duck, Common Goldeneye, Ruddy Duck, Red-shouldered Hawk, Rough-legged Hawk, American Kestrel, Common Moorhen, American Coot, Black-bellied Plover, American Golden-plover, Least Sandpiper, Baird's Sandpiper, Short-billed Dowitcher, Glaucous Gull, Eastern Wood-peewee, Least Flycatcher, Great Crested Flycatcher, Cliff Swallow, Brown Creeper, Winter Wren, Golden-crowned Kinglet, Wood Thrush, Golden-winged Warbler, Yellow-rumped Warbler, Cerulean Warbler, Black-and-white Warbler, Dickcissel, American Tree Sparrow, Lark Sparrow, Savannah Sparrow, Song Sparrow, and Swamp Sparrow.

Significant u-shaped trends in reporting frequencies (decreasing during the late 1980s to mid 1990s and subsequently increasing) were observed for 3 species: American Robin, Henslow's Sparrow, and Baltimore Oriole.

Reporting frequencies were classified as stable for 86 species (linear or quadratic models did not explain a significant portion of the annual variation in reporting rates). However, several of these species did exhibit considerable variation in reporting frequencies. This was particularly notable for irruptive winter finches. For example, reporting rates of Common Redpoll reached highs in 1990 (8.0%), 1992 (7.6%), 1996 (12.5%), and 2004 (8.0%) but were as low as 2.3% in

1993, 2.2% in 2001, and 0.7% in 2003. Pine Grosbeak and White-winged Crossbill and showed similar erratic fluctuations in reporting rates.

Changes in cooperator activity may have affected species reporting frequencies. The potential confounding influence of cooperator activity should be kept in mind when interpreting trends in reporting rates.

Acknowledgments

This project would not have been possible without the efforts of the 437 volunteers who contributed checklists. Their dedication to the birds of Wisconsin is greatly appreciated. Additionally, I am grateful for the efforts of Stanley and Anita Temple and John Cary who originated the checklist project and maintained it during its first six years.

Literature Cited

Temple, S. A., J. R. Cary, and R. E. Rolley. 1997. Wisconsin birds: a seasonal and geographical guide, 2nd Edition. University of Wisconsin Press, Madison, WI. 320pp.

Table 1. Number of Wisconsin Checklist Project cooperators, number of checklists submitted, percent of checklists that represented active birding, and mean number of species reported per checklist during 1983-2004.

Year	No. of cooperators	No. of checklists	% active	Mean no. of species
1983	237	8,553	46.3	28.4
1984	169	6,037	46.9	27.9
1985	143	4,988	41.2	27.9
1986	128	5,180	41.1	28.1
1987	117	5,127	46.1	28.4
1988	114	4,767	44.3	28.7
1989	106	3,978	49.5	29.6
1990	120	4,234	51.3	30.7
1991	90	3,683	55.9	32.8
1992	80	3,301	56.6	32.3
1993	95	4,001	54.0	32.2
1994	103	4,233	53.6	32.6
1995	95	3,951	54.2	32.6
1996	92	3,850	55.5	32.4
1997	84	3,649	59.4	31.8
1998	81	3,491	53.7	32.4
1999	77	3,241	50.3	31.3
2000	67	2,889	50.4	31.2
2001	61	2,697	51.2	31.7
2002	63	2,589	54.3	32.4
2003	54	2,200	50.8	31.7
2004	49	1,728	47.5	32.8

Table 2. Percentage of WCP checklists on which each species was reported during 1983-2004. Trends were estimated by regression analysis.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Red-throated Loon	0.2	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.0	0.4	stbl
Common Loon	6.3	5.9	6.1	6.6	7.3	6.7	7.1	7.4	6.4	6.0	5.9	5.2	5.9	8.0	6.9	6.3	stbl
Pied-billed Grebe	11.4	8.6	12.3	10.7	12.1	14.7	14.0	16.0	14.4	14.3	13.1	13.2	9.3	11.6	9.2	10.0	invu**
Horned Grebe	1.7	1.3	1.9	2.5	2.7	1.8	1.7	2.1	2.3	3.1	2.0	0.9	1.3	1.2	0.8	0.8	invu*
Red-necked Grebe	1.0	0.5	0.5	0.5	0.8	0.5	0.8	0.5	0.4	0.4	0.5	0.6	1.0	0.5	0.4	0.5	decr**
Eared Grebe ^b									0.1	0.4	0.3	0.3	0.3	0.4	0.0	0.1	
Western Grebe ^b									0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	
American White Pelican ^b									1.0	2.1	2.4	3.2	3.7	3.8	4.8	5.8	
Double-crested Cormorant	5.9	7.8	11.8	11.6	11.5	11.7	10.9	13.2	11.6	13.4	12.3	10.6	9.8	11.1	10.6	14.2	incr***
American Bittern	2.8	2.7	3.3	2.3	2.7	2.0	2.3	2.1	1.9	1.9	1.0	0.8	1.7	2.0	1.2	1.8	decr***
Least Bittern	0.7	0.8	1.2	0.9	0.6	0.7	0.2	0.4	0.5	0.4	0.5	0.3	0.4	0.4	0.2	0.5	decr**
Great Blue Heron	26.5	30.9	35.4	33.7	32.8	35.3	31.7	33.9	34.1	32.6	31.9	33.4	32.9	33.3	34.4	33.9	incr***
Great Egret	4.1	4.5	6.5	5.7	4.6	5.6	4.0	3.8	5.6	3.7	5.9	5.8	6.1	7.6	8.1	8.9	incr***
Snowy Egret ^b									0.7	0.6	0.7	0.8	1.1	0.9	1.5	0.8	
Little Blue Heron ^b									0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.2	
Cattle Egret	0.2	0.8	0.8	0.9	1.5	1.2	0.5	0.9	0.4	0.4	0.3	0.2	0.2	0.3	0.1	0.1	invu**
Green Heron	12.0	12.9	14.8	12.2	12.1	11.2	9.6	10.4	9.6	10.7	11.2	11.6	11.5	11.3	11.3	10.6	stbl
Black-crowned Night-heron	2.1	3.6	6.0	5.0	3.9	4.2	3.5	4.3	2.8	3.0	3.1	3.2	3.3	3.8	3.3	3.5	invu*
Yellow-crowned Night-heron	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	stbl
Tundra Swan	3.6	4.4	5.0	5.5	3.7	4.4	4.4	3.6	3.8	4.6	5.7	5.7	5.4	5.3	4.0	5.2	incr**
Trumpeter Swan ^b									0.6	1.4	0.7	0.9	1.7	1.6	0.9	0.8	
Mute Swan	2.8	2.8	4.6	5.4	3.3	4.1	4.9	4.6	3.2	5.1	4.2	3.6	3.7	3.7	3.8	4.3	incr*
Greater White-fronted Goose ^b									0.2	0.5	0.4	0.7	0.4	0.5	0.6	0.7	
Snow Goose	1.9	2.6	2.6	2.5	2.5	2.2	1.5	1.8	1.2	1.8	2.5	1.8	1.8	1.9	1.6	1.2	invu*
Canada Goose	34.8	47.2	50.6	52.1	54.0	56.9	59.0	58.3	60.5	65.0	64.9	68.2	65.4	70.4	71.6	74.3	incr***
Wood Duck	16.9	20.6	23.2	22.2	21.1	25.1	25.9	23.0	20.9	21.7	20.1	17.0	17.8	19.3	19.8	19.9	invu***
Green-winged Teal	4.1	5.7	8.9	7.5	6.2	7.8	7.3	7.2	6.4	6.7	7.2	7.4	5.5	4.9	5.2	5.6	incr*
American Black Duck	7.9	9.8	13.2	14.9	13.2	11.2	11.4	11.6	8.6	7.5	8.5	7.8	6.7	7.2	7.0	5.7	invu***
Mallard	49.8	55.5	57.6	62.9	62.0	63.2	63.8	64.9	61.5	62.0	61.2	63.2	61.0	61.6	62.6	63.1	incr***
Northern Pintail	2.7	4.4	4.5	4.5	2.6	3.0	2.6	2.7	2.4	2.8	2.6	2.9	2.2	2.6	2.1	2.1	invu*
Blue-winged Teal	15.3	15.2	18.0	15.1	16.5	17.5	15.6	16.3	15.2	15.1	14.6	12.7	12.2	14.7	12.6	15.3	stbl
Northern Shoveler	5.0	7.0	8.6	7.7	8.2	7.9	8.1	8.1	7.5	7.1	7.9	7.8	6.9	7.9	6.6	7.6	incr**
Gadwall	2.8	4.4	6.0	6.3	5.5	4.5	4.4	4.2	4.9	4.2	5.5	5.3	5.5	5.2	4.7	5.7	incr***
American Wigeon	4.7	6.1	7.6	6.2	6.4	7.1	6.3	5.3	5.2	5.6	4.9	5.6	3.8	4.3	4.1	4.3	invu**
Canvasback	3.0	3.1	3.5	3.5	3.5	3.8	3.8	3.0	3.9	3.2	3.6	2.9	4.1	3.8	2.6	3.0	invu*
Redhead	3.8	3.9	6.1	5.5	5.8	5.1	5.0	5.7	6.1	5.1	5.5	4.5	4.4	6.4	5.4	3.9	incr*
Ring-necked Duck	6.5	7.2	8.7	9.2	9.2	9.9	10.4	9.0	7.4	6.8	6.8	6.7	6.0	6.9	6.5	5.4	invu***
Greater Scaup	4.2	4.0	4.8	5.3	4.8	3.9	4.2	5.2	4.9	3.9	5.2	3.2	2.7	3.7	3.0	3.7	stbl
Lesser Scaup	7.7	8.9	9.7	9.1	7.7	7.4	9.3	9.6	9.2	8.3	8.2	6.0	5.6	7.1	5.4	7.9	stbl
Long-tailed Duck	1.2	1.4	1.5	1.5	1.2	0.4	0.9	1.0	0.8	0.5	0.5	0.2	0.2	0.3	0.1	0.2	decr***
Black Scoter	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	incr**
Surf Scoter	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.5	0.1	0.4	0.4	0.2	0.1	stbl
White-winged Scoter	0.3	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.4	0.2	0.1	0.1	0.2	0.3	0.1	stbl

Table 2. Continued.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Common Goldeneye	8.9	9.1	10.5	11.5	11.3	8.4	9.1	10.8	9.8	8.9	9.2	6.3	7.9	8.5	7.8	7.6	invu**
Bufflehead	7.7	9.1	9.7	10.7	10.8	10.5	11.7	11.1	10.3	9.8	11.3	8.1	8.8	10.4	8.8	8.2	incr*
Hooded Merganser	4.2	4.8	6.6	6.9	7.1	7.0	8.7	9.1	8.1	7.3	7.2	5.4	6.2	8.9	8.9	7.8	incr***
Common Merganser	6.0	6.8	7.7	10.7	11.5	9.4	9.6	11.4	10.1	9.7	8.4	6.4	7.7	9.1	8.4	8.9	incr**
Red-breasted Merganser	4.9	5.2	7.1	7.0	7.5	5.5	4.6	5.1	5.0	5.0	5.2	3.5	3.3	3.1	2.7	2.7	decr*
Ruddy Duck	5.2	4.8	7.3	6.8	6.7	5.9	6.1	6.7	6.5	7.4	7.3	6.0	4.6	6.2	3.6	4.6	invu*
Turkey Vulture	10.9	14.0	14.7	14.5	15.6	20.5	20.2	20.3	22.4	24.0	23.2	24.4	25.9	26.2	26.8	28.2	incr***
Osprey	3.8	3.9	5.4	5.5	5.8	5.1	5.0	5.2	5.7	5.9	4.0	4.3	5.3	6.5	5.1	5.4	incr***
Bald Eagle	8.0	7.9	9.6	11.3	12.2	13.4	15.8	15.0	16.2	16.6	15.4	17.0	19.5	23.4	21.4	25.6	incr***
Northern Harrier	12.2	14.2	16.0	16.2	15.5	18.9	19.1	17.6	16.1	18.5	17.4	16.1	16.7	18.2	16.6	16.8	incr***
Sharp-shinned Hawk	6.4	6.8	9.4	8.3	8.5	9.1	10.0	8.6	8.8	9.3	7.9	8.5	9.3	9.6	8.7	10.5	incr***
Cooper's Hawk	4.3	8.6	11.8	11.6	12.5	12.1	13.8	13.6	15.3	16.1	15.7	17.9	18.3	19.9	18.5	19.7	incr***
Northern Goshawk	1.5	1.8	2.0	2.4	2.6	2.0	1.1	0.9	0.8	0.9	0.6	0.9	1.0	1.5	1.5	1.7	stbl
Red-shouldered Hawk	2.1	2.3	3.1	3.4	3.6	3.3	3.1	3.0	3.2	3.7	2.4	2.0	1.0	1.8	2.5	1.7	invu**
Broad-winged Hawk	5.7	5.7	6.6	5.8	6.2	6.2	5.2	5.4	4.3	5.4	4.1	3.8	3.5	4.3	4.7	3.8	decr***
Red-tailed Hawk	41.6	45.9	50.6	50.3	49.6	57.1	56.2	51.3	52.3	51.2	52.0	53.9	55.1	54.4	55.6	53.9	incr***
Rough-legged Hawk	6.8	7.7	11.4	9.0	7.5	7.1	10.3	7.4	8.0	7.6	9.7	10.7	6.8	6.7	6.0	7.5	invu**
Golden Eagle ^b									0.1	0.0	0.0	0.1	0.4	0.4	0.0	0.5	
American Kestrel	42.2	45.8	50.8	52.0	48.6	47.1	48.3	40.4	39.5	38.9	39.6	39.4	37.4	42.0	37.8	36.2	invu***
Merlin	0.9	1.4	1.6	1.6	1.7	2.0	2.2	2.2	1.6	2.6	1.5	1.7	2.2	2.3	1.6	2.7	incr***
Peregrine Falcon	0.5	1.3	0.8	1.1	1.1	1.0	1.0	1.3	0.9	1.3	1.7	1.6	1.1	1.1	0.6	1.5	incr***
Gray Partridge	2.2	1.8	2.2	1.5	1.0	1.3	1.0	0.9	1.1	1.1	0.4	0.6	0.1	0.1	0.2	0.2	decr***
Ring-necked Pheasant	15.1	14.9	14.9	13.6	15.0	15.8	16.1	14.9	15.7	15.6	16.9	17.5	18.7	18.3	22.6	25.0	incr**
Spruce Grouse ^b									0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Ruffed Grouse	15.5	14.7	12.6	12.2	11.3	10.4	12.7	12.3	12.8	15.0	11.9	13.8	12.9	13.4	11.7	12.8	stbl
Greater Prairie-chicken	1.0	0.6	1.4	0.9	0.7	0.6	0.4	0.7	0.5	1.2	0.6	1.1	1.0	0.9	0.1	0.2	stbl
Sharp-tailed Grouse	0.7	0.2	0.2	0.1	0.5	0.5	0.8	0.4	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	decr**
Wild Turkey	2.1	5.1	8.3	7.0	9.4	10.7	14.1	14.2	16.1	18.3	21.5	22.1	28.1	26.9	30.0	36.8	incr***
Northern Bobwhite	2.1	2.9	3.8	2.6	2.6	2.2	2.3	1.8	2.3	1.9	1.8	3.2	2.4	1.4	2.7	1.7	stbl
Yellow Rail ^b									0.1	0.3	0.3	0.2	0.3	0.2	0.2	0.5	
King Rail ^b									0.0	0.1	0.0	0.1	0.2	0.0	0.2	0.1	
Virginia Rail	1.0	0.6	1.3	1.6	1.0	1.3	1.1	1.4	1.2	1.4	1.1	0.5	0.8	1.1	1.4	1.5	stbl
Sora	3.7	4.1	5.1	4.0	4.6	4.3	3.3	4.4	3.8	4.5	3.3	2.0	3.1	5.3	3.2	5.0	stbl
Common Moorhen	1.1	0.9	1.8	1.8	0.7	2.2	1.5	1.1	1.0	1.4	1.6	0.6	0.8	0.9	0.6	0.8	invu**
American Coot	13.1	13.6	16.1	14.8	12.3	15.4	16.2	18.6	19.7	17.9	17.0	15.2	13.3	15.4	10.6	11.1	invu**
Sandhill Crane	14.1	18.9	20.9	21.1	23.2	23.7	24.6	26.2	28.9	33.5	31.1	33.9	35.8	35.5	35.6	36.1	incr***
Black-bellied Plover	0.8	0.8	1.6	1.5	1.2	1.1	0.8	0.9	0.4	1.0	0.7	1.0	0.7	0.8	0.4	0.8	invu*
American Golden-plover	0.6	0.5	0.8	0.9	0.6	0.8	0.4	0.4	0.8	1.0	0.7	1.0	1.0	0.5	0.3	0.4	invu*
Semipalmated Plover	1.5	1.4	2.4	2.8	1.4	2.2	1.0	1.4	1.3	1.7	1.5	1.5	2.0	1.7	1.1	1.4	stbl
Piping Plover ^b									0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	
Killdeer	42.0	41.3	40.3	39.4	37.6	40.6	37.3	35.6	37.1	34.7	33.6	34.1	33.0	32.8	29.6	29.5	decr***
American Avocet ^b									0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	
Greater Yellowlegs	3.6	3.0	4.3	4.6	3.2	4.7	3.5	4.8	3.6	3.7	3.4	3.1	3.9	5.1	4.4	3.4	stbl

Table 2. Continued.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Lesser Yellowlegs	4.9	4.1	5.6	5.6	3.4	5.4	4.4	5.6	5.0	5.0	4.2	4.4	4.8	5.7	4.4	3.9	stbl
Solitary Sandpiper	2.9	2.9	3.9	3.3	2.4	3.6	2.5	3.2	2.9	3.1	2.3	2.3	2.6	2.8	2.1	3.0	stbl
Willet	0.2	0.3	0.1	0.1	0.1	0.3	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.4	0.2	0.4	stbl
Spotted Sandpiper	6.4	6.6	8.1	7.2	6.4	7.5	6.4	8.0	6.3	6.1	4.6	4.4	4.9	5.3	5.4	4.5	decr**
Upland Sandpiper	1.7	1.6	2.0	1.6	1.4	1.8	1.4	1.2	1.2	1.6	1.3	1.0	1.1	1.2	0.6	0.6	decr***
Whimbrel ^b								0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	
Hudsonian Godwit	0.2	0.1	0.0	0.3	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.3	0.0	0.2	0.1	0.1	stbl
Marbled Godwit	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.4	0.2	0.2	0.1	0.3	incr*
Ruddy Turnstone	0.6	0.4	1.0	0.9	0.9	0.3	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.4	0.4	0.6	decr*
Red Knot	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.4	0.1	0.2	stbl
Sanderling	0.8	0.9	0.9	0.6	0.9	0.5	0.6	0.8	0.3	0.8	0.8	0.8	0.8	0.8	0.8	0.9	stbl
Semipalmated Sandpiper	1.7	2.1	3.2	3.1	1.5	2.2	1.3	2.1	1.3	1.8	1.3	1.9	1.5	1.7	1.3	1.8	stbl
Western Sandpiper ^b								0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	
Least Sandpiper	2.2	2.7	3.9	4.2	2.4	2.4	2.1	3.0	2.4	2.8	2.5	2.6	2.4	3.0	1.7	2.1	invu**
White-rumped Sandpiper	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.6	0.4	0.4	0.5	0.5	0.4	0.3	0.4	0.4	incr**
Baird's Sandpiper	0.4	0.5	0.9	1.0	0.5	0.6	0.4	0.7	0.4	0.8	0.7	0.4	0.8	0.4	0.3	0.4	invu*
Pectoral Sandpiper	2.6	1.8	4.3	3.3	1.4	2.4	1.7	2.2	1.4	2.3	2.6	2.8	2.2	2.6	1.7	2.0	stbl
Dunlin	1.4	1.6	3.1	2.5	1.7	2.1	1.5	1.8	1.6	1.6	1.7	2.2	1.6	2.0	1.1	2.0	stbl
Stilt Sandpiper	0.5	0.2	0.8	0.6	0.2	0.5	0.3	0.5	0.4	0.3	0.5	0.4	0.5	0.4	0.3	0.3	stbl
Buff-breasted Sandpiper ^b								0.1	0.3	0.2	0.1	0.4	0.3	0.2	0.1	0.1	
Ruff ^b								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
Short-billed Dowitcher	1.2	1.3	2.2	1.7	0.9	1.5	0.9	1.4	0.9	1.2	1.1	1.1	0.9	1.1	0.8	0.9	invu*
Long-billed Dowitcher	0.3	0.3	1.0	0.7	0.2	0.2	0.3	0.3	0.2	0.3	0.5	0.5	0.2	0.4	0.4	0.2	stbl
Wilson's Snipe	6.9	5.6	8.8	6.4	7.7	6.9	5.6	6.4	4.7	6.8	6.0	4.3	6.1	5.0	5.0	5.1	decr*
American Woodcock	5.4	4.4	5.3	5.0	4.8	5.2	4.2	4.0	3.9	4.9	4.5	4.1	4.8	3.7	4.3	4.5	decr***
Wilson's Phalarope	0.8	0.7	1.4	1.0	0.7	1.0	0.3	0.8	0.3	0.6	0.2	0.5	0.4	1.0	0.6	0.9	stbl
Red-necked Phalarope	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.0	0.1	0.1	stbl
Laughing Gull ^b								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Franklin's Gull	0.2	0.2	0.6	0.2	0.2	0.2	0.2	0.4	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.3	stbl
Little Gull ^b								0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	
Bonaparte's Gull	3.3	3.6	4.8	3.5	4.4	4.5	4.4	2.8	3.7	4.4	3.5	3.5	2.9	2.8	2.3	3.3	stbl
Ring-billed Gull	22.7	29.9	35.6	35.0	39.3	38.6	38.2	34.7	39.9	46.1	38.9	42.5	39.4	38.8	39.2	46.9	incr***
Herring Gull	19.5	21.3	26.2	27.1	26.4	27.3	25.2	25.0	25.5	26.3	22.0	22.1	22.7	25.9	21.5	26.2	incr*
Thayer's Gull ^b								0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
Iceland Gull ^b								0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	
Glaucous Gull	0.3	0.6	0.8	0.9	0.9	0.4	0.6	0.8	0.8	0.9	0.4	0.3	0.3	0.2	0.4	0.4	invu***
Greater Black-backed Gull ^b								0.1	0.7	0.6	0.6	0.5	0.3	0.2	0.5	0.5	
Caspian Tern	2.1	3.9	4.9	4.4	4.0	3.9	4.1	4.3	3.6	3.5	3.7	3.7	3.2	3.3	3.1	4.0	incr*
Common Tern	3.2	3.0	2.7	3.4	3.3	3.1	2.8	3.0	3.1	1.8	1.5	1.8	1.9	1.9	2.3	2.6	decr***
Forster's Tern	2.2	3.4	4.5	4.6	4.2	3.7	3.3	3.7	3.3	3.0	2.5	3.0	2.7	3.8	2.8	3.5	stbl
Black Tern	5.6	4.5	5.2	5.1	6.0	5.8	4.7	4.5	4.3	3.6	3.3	2.2	3.3	3.8	2.9	1.8	decr***
Rock Pigeon	72.4	70.9	72.8	73.7	74.1	73.1	74.0	72.3	71.6	69.9	65.8	65.5	64.2	63.3	62.6	61.5	decr***
Mourning Dove	76.5	85.3	86.0	85.8	84.5	83.7	85.2	84.5	82.0	83.0	82.5	85.8	82.5	84.9	85.6	86.0	incr***

Table 2. Continued.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Black-billed Cuckoo	3.7	3.7	6.9	5.6	3.2	2.7	3.3	3.0	4.4	4.3	2.4	2.0	2.7	2.8	3.4	2.3	stbl
Yellow-billed Cuckoo	2.2	1.4	2.8	2.4	1.1	1.0	0.9	1.2	1.9	1.7	2.0	1.1	1.3	1.2	1.3	1.0	decr**
Common Barn-owl	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	stbl
Eastern Screech-owl	2.5	2.6	4.0	2.9	2.8	2.2	3.1	1.8	1.1	1.5	1.6	1.2	2.3	2.5	2.8	2.5	stbl
Great Horned Owl	11.6	10.7	13.9	15.3	15.4	16.3	13.5	11.7	12.1	11.9	11.1	13.0	12.6	13.0	13.9	14.7	stbl
Snowy Owl	0.8	0.4	1.2	2.0	1.5	0.8	0.3	0.9	1.2	0.4	0.2	0.6	1.0	0.6	0.0	0.4	stbl
Barred Owl	9.5	8.9	9.3	9.7	10.6	9.5	10.4	9.3	8.7	10.3	8.2	8.1	9.1	6.3	7.3	8.7	decr*
Great Grey Owl	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.2	stbl
Long-eared Owl	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.1	0.3	0.2	0.2	0.1	0.3	0.4	0.2	0.6	stbl
Short-eared Owl	0.4	0.6	1.3	0.5	0.2	0.6	1.1	0.4	0.8	0.5	0.6	1.2	1.0	1.1	0.8	0.2	stbl
Northern Saw-whet Owl	0.3	0.5	0.5	0.7	0.6	1.2	0.5	0.4	0.6	0.6	0.6	0.6	0.6	0.9	0.7	1.2	incr***
Common Nighthawk	13.6	9.6	11.2	11.5	11.1	9.1	8.9	10.7	7.8	8.9	6.9	6.4	6.0	5.2	6.5	6.1	decr***
Whip-poor-will	5.0	3.8	3.9	4.1	3.4	3.5	3.2	2.4	2.6	4.3	3.5	2.8	3.6	2.6	3.5	2.6	decr***
Chimney Swift	22.0	20.2	23.3	21.3	19.5	19.4	18.5	19.0	18.1	18.0	16.2	15.9	17.7	18.4	21.1	17.0	decr***
Ruby-throated Hummingbird	13.5	14.5	16.7	16.7	16.5	19.0	18.4	21.0	22.3	22.0	23.0	25.2	24.7	26.4	28.3	26.6	incr***
Belted Kingfisher	22.0	21.0	22.2	20.9	21.0	20.6	20.1	20.2	18.5	21.2	21.0	18.9	18.4	19.4	20.5	18.3	decr***
Red-headed Woodpecker	18.8	14.6	13.2	12.2	11.4	10.7	10.0	8.9	8.0	7.1	6.5	4.4	5.6	6.5	3.2	3.8	decr***
Red-bellied Woodpecker	24.3	29.7	33.1	34.4	36.6	36.6	38.6	35.7	39.8	42.2	47.0	46.8	48.2	50.1	51.8	55.7	incr***
Yellow-bellied Sapsucker	6.5	8.4	6.7	7.2	6.8	8.7	8.5	7.4	7.8	9.2	7.3	6.4	6.0	9.1	9.6	10.2	incr**
Downy Woodpecker	60.8	66.0	67.4	67.7	67.1	68.5	68.8	68.9	69.9	75.4	75.6	77.1	75.4	75.3	77.2	78.1	incr***
Hairy Woodpecker	39.1	43.1	43.9	48.2	47.5	48.1	49.6	46.9	45.5	50.9	51.3	50.4	52.6	52.5	51.6	57.5	incr***
Black-backed Woodpecker ^b									0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	
Northern Flicker	41.5	41.9	42.8	39.6	38.1	39.2	35.9	32.9	33.1	34.1	31.6	32.0	30.9	32.2	32.4	34.0	decr***
Pileated Woodpecker	11.8	14.8	13.8	14.0	14.1	14.8	16.2	16.5	15.3	17.8	15.4	15.7	18.5	18.7	18.3	20.5	incr***
Olive-sided Flycatcher	0.7	1.0	0.7	1.2	0.8	0.9	1.0	1.4	0.8	0.8	1.0	0.9	0.7	0.8	0.2	1.6	stbl
Eastern Wood-peewee	12.3	12.8	17.4	14.9	14.8	15.5	13.7	13.9	13.5	13.9	12.6	12.2	15.0	13.6	14.0	11.7	invu**
Yellow-bellied Flycatcher	0.7	0.9	0.7	1.1	1.1	1.2	1.0	1.6	1.6	1.0	0.7	0.5	1.0	1.4	0.9	1.6	incr*
Acadian Flycatcher	0.4	0.3	0.8	1.0	1.0	0.7	0.7	0.8	0.4	0.4	0.4	0.4	0.7	0.9	0.4	0.5	stbl
Alder Flycatcher	1.1	1.5	2.0	2.2	3.0	2.2	2.2	3.5	2.5	2.7	2.4	2.2	2.3	2.4	2.7	3.0	incr***
Willow Flycatcher	2.0	3.1	4.6	3.1	4.0	3.1	3.5	3.6	3.6	3.8	3.5	2.6	2.5	3.5	3.7	3.5	incr**
Least Flycatcher	5.0	6.2	6.9	7.4	7.4	6.0	6.4	6.6	6.4	6.5	6.8	5.8	6.2	6.6	5.7	5.1	invu**
Eastern Phoebe	14.4	17.3	18.9	16.1	19.0	21.3	21.5	18.7	19.6	24.7	23.7	24.5	24.7	27.9	21.2	23.3	incr***
Great Crested Flycatcher	13.2	14.6	15.6	15.5	14.4	13.7	14.2	13.9	13.2	13.9	12.2	11.9	13.6	12.4	14.0	12.6	invu**
Western Kingbird ^b									0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	
Eastern Kingbird	20.6	21.1	21.4	20.7	20.5	20.3	19.4	20.3	18.5	18.7	16.4	16.6	19.3	19.3	16.5	16.7	decr***
Horned Lark	20.7	19.3	19.8	20.6	21.0	20.1	19.6	20.3	21.1	19.3	17.8	17.0	16.0	14.6	11.3	12.7	decr***
Purple Martin	13.8	14.7	12.2	13.2	10.2	10.3	10.1	10.5	8.5	8.1	8.1	6.2	7.4	8.0	7.6	6.7	decr***
Tree Swallow	30.9	29.6	31.7	29.2	29.7	30.5	30.4	31.2	31.7	31.7	29.6	28.6	29.7	30.4	28.3	30.0	stbl
Northern Rough-winged Swallow	7.0	7.5	7.5	7.5	7.4	7.7	7.4	8.0	7.3	6.7	7.1	6.5	7.7	8.2	7.4	6.3	stbl
Bank Swallow	4.6	4.8	5.2	4.5	5.1	3.4	4.5	4.9	4.0	3.6	4.1	3.1	3.2	4.4	2.6	4.5	decr**
Cliff Swallow	8.0	8.1	8.6	8.5	8.3	9.4	9.2	9.4	8.6	10.1	7.3	7.4	7.1	5.8	6.3	7.8	invu**
Barn Swallow	29.5	28.8	29.8	28.1	29.0	28.2	28.1	30.5	28.0	27.0	25.6	24.5	26.3	26.0	26.6	24.5	decr***
Gray Jay	2.0	1.0	0.5	1.2	0.7	0.9	1.0	0.9	0.6	0.5	0.3	0.4	0.6	1.0	1.2	1.2	decr***

Table 2. Continued.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Blue Jay	83.1	82.9	83.4	82.4	83.7	84.7	85.5	81.4	82.0	81.4	77.8	80.0	82.5	82.0	80.6	80.2	decr*
American Crow	88.3	88.2	89.7	91.2	90.7	92.6	93.0	92.0	91.6	91.7	89.5	91.7	91.8	91.3	93.3	94.3	incr***
Common Raven	11.0	11.5	10.0	12.7	13.3	14.0	16.6	15.5	13.2	15.8	13.5	14.2	13.9	14.3	14.1	17.8	incr***
Black-capped Chickadee	78.8	83.4	83.6	83.1	84.8	87.0	87.3	84.9	84.9	87.2	87.4	89.4	88.5	88.2	89.7	88.0	incr***
Boreal Chickadee	0.2	0.1	0.2	0.2	0.1	0.2	0.0	0.1	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.0	decr**
Tufted Titmouse	4.1	2.8	2.9	2.1	2.6	3.4	5.5	4.8	5.8	5.2	7.5	8.1	9.6	8.9	8.1	10.1	incr***
Red-breasted Nuthatch	16.2	29.5	16.3	15.2	27.4	24.9	29.8	28.4	31.7	28.0	27.6	25.3	28.3	21.1	15.9	29.5	incr**
White-breasted Nuthatch	63.2	66.8	65.8	64.6	66.7	69.0	68.7	62.9	63.6	68.6	70.6	70.1	74.0	73.5	74.3	72.2	incr***
Brown Creeper	8.4	9.1	9.8	13.4	12.0	11.2	12.5	10.5	9.4	10.5	8.3	7.7	7.2	8.9	8.6	7.4	invu**
Carolina Wren ^b									0.1	0.1	0.2	0.0	0.2	0.1	0.2	0.2	
House Wren	23.9	26.6	27.9	24.9	25.0	25.1	24.8	22.4	23.4	24.8	26.7	26.3	26.3	23.9	27.4	27.6	stbl
Winter Wren	2.4	3.1	3.9	4.7	5.3	5.0	5.7	4.3	4.5	5.5	3.4	2.9	2.6	3.7	2.5	3.7	invu***
Sedge Wren	3.6	3.8	5.0	6.5	6.0	5.5	4.4	4.8	5.4	5.0	4.9	4.2	5.9	6.7	6.0	7.3	incr***
Marsh Wren	3.1	3.4	6.0	5.3	5.0	4.2	4.3	4.4	4.1	3.9	4.0	2.4	4.0	4.0	4.1	3.6	stbl
Golden-crowned Kinglet	6.5	8.1	10.0	9.2	9.2	8.0	9.6	5.6	6.2	8.1	7.5	7.5	4.9	6.8	6.0	7.0	invu*
Ruby-crowned Kinglet	7.3	7.5	10.0	8.3	7.9	10.0	9.3	8.2	8.2	7.3	7.2	6.9	6.5	9.4	7.2	7.6	stbl
Blue-gray Gnatcatcher	3.1	4.5	6.2	6.1	4.9	5.8	5.8	5.2	5.8	5.6	6.5	6.0	7.5	8.8	8.6	6.2	incr***
Eastern Bluebird	19.6	29.5	31.1	28.0	26.5	31.0	31.1	29.4	29.0	32.3	28.7	33.3	32.6	32.4	31.1	33.7	incr***
Veery	4.7	5.3	6.0	5.8	6.9	5.6	6.3	7.1	6.2	6.0	4.8	3.8	5.0	5.6	4.7	6.2	stbl
Gray-cheeked Thrush	1.4	1.3	1.4	1.6	1.9	1.0	1.5	1.6	1.6	0.9	0.7	0.9	0.6	0.6	1.2	0.7	decr*
Swainson's Thrush	3.5	3.5	4.5	3.3	4.7	2.7	4.6	3.9	4.3	3.8	3.6	2.8	3.0	3.2	3.7	3.7	stbl
Hermit Thrush	4.8	6.0	7.6	6.9	7.4	7.6	8.2	7.9	6.8	7.8	5.6	5.3	6.6	7.0	6.6	8.0	incr**
Wood Thrush	7.4	8.2	7.8	7.1	8.7	8.7	8.5	7.5	8.5	8.1	6.6	6.9	8.9	7.7	7.8	6.6	invu*
American Robin	66.4	67.9	66.7	67.1	63.3	67.0	65.5	64.7	65.3	68.6	68.0	69.4	64.3	67.9	67.8	69.0	ushp*
Gray Catbird	25.4	26.0	28.8	27.3	27.9	25.9	25.3	23.7	24.1	24.2	25.2	26.6	29.5	27.9	28.6	26.9	stbl
Northern Mockingbird	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.6	0.2	0.2	0.2	0.2	0.2	stbl
Brown Thrasher	17.4	16.1	16.2	15.0	13.9	14.3	13.6	13.0	11.4	13.2	10.8	10.4	12.2	13.0	12.4	12.7	decr***
American Pipit	0.3	0.2	0.7	0.2	0.2	0.4	0.3	0.7	0.7	1.0	0.9	0.7	0.9	0.7	0.5	0.5	incr**
Bohemian Waxwing	0.7	0.8	0.2	0.5	0.3	0.4	0.2	0.2	0.3	0.6	0.8	0.7	0.7	0.6	0.4	0.7	stbl
Cedar Waxwing	28.2	29.9	29.3	29.6	27.3	32.3	26.9	30.5	28.1	31.8	27.6	28.5	34.2	31.9	34.7	32.4	incr*
Northern Shrike	3.4	3.4	4.2	3.6	3.1	4.0	6.8	4.0	3.0	3.6	4.2	4.6	3.0	2.8	3.7	5.7	stbl
Loggerhead Shrike	0.4	0.2	0.7	0.6	0.1	0.3	0.5	0.4	0.3	0.2	1.0	0.6	0.4	0.5	0.0	0.6	stbl
European Starling	80.7	79.0	80.5	81.6	81.3	79.6	79.6	77.2	76.4	76.1	72.6	74.1	73.1	68.9	70.5	72.5	decr***
White-eyed Vireo ^b									0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.4	
Bell's Vireo	0.1	0.3	0.4	0.2	0.5	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.3	0.8	0.7	incr*
Blue-headed Vireo	1.3	2.1	2.1	1.9	2.2	2.2	2.3	2.1	2.3	1.4	1.7	1.7	2.0	2.9	2.7	2.3	incr**
Yellow-throated Vireo	2.8	4.2	5.8	4.5	4.0	4.8	4.3	4.0	4.5	4.4	4.0	3.4	4.4	4.4	4.5	4.8	incr**
Warbling Vireo	6.4	7.6	9.3	8.1	9.1	8.5	8.3	7.8	7.7	8.2	8.4	7.6	9.6	8.5	8.1	7.6	incr***
Philadelphia Vireo	1.1	1.5	1.6	1.2	1.0	1.4	1.0	1.3	1.3	1.0	0.9	0.8	1.0	1.6	1.1	1.0	stbl
Red-eyed Vireo	10.1	11.9	15.3	14.3	13.3	14.1	13.1	14.9	14.1	15.6	13.8	14.4	15.8	14.5	17.4	16.0	incr***
Blue-winged Warbler	2.3	2.7	3.4	3.5	4.1	3.8	3.5	3.6	4.0	3.6	3.2	3.1	3.9	3.8	3.4	3.8	incr***
Golden-winged Warbler	1.7	2.8	2.6	2.8	3.3	2.5	2.1	2.9	3.1	2.6	1.9	1.8	1.9	2.8	2.1	1.6	invu**
Tennessee Warbler	3.5	3.9	6.1	4.4	4.6	3.9	4.1	4.2	4.3	4.3	4.0	3.9	3.9	4.9	5.3	3.9	stbl

Table 2. Continued.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Orange-crowned Warbler	1.1	1.4	1.8	1.5	1.4	1.1	1.2	1.4	1.6	0.9	1.1	0.8	1.0	1.6	1.7	1.6	stbl
Nashville Warbler	4.0	4.5	5.6	6.5	5.9	5.6	6.3	6.6	7.2	5.0	5.3	4.3	4.9	6.3	5.6	5.3	incr*
Northern Parula	1.1	1.7	2.0	1.5	1.4	2.1	1.7	2.5	2.5	1.4	1.3	1.5	2.0	3.0	2.1	2.3	incr***
Yellow Warbler	10.0	12.1	13.0	12.4	12.7	12.0	13.0	13.3	12.3	10.3	10.8	10.6	12.5	13.6	12.3	11.3	incr*
Chestnut-sided Warbler	4.4	6.1	6.1	6.4	7.2	6.6	6.3	7.7	6.9	5.9	5.7	5.4	6.5	7.0	6.1	5.6	incr**
Magnolia Warbler	3.8	4.7	5.3	4.9	5.4	4.2	4.7	5.7	5.3	3.7	4.2	3.5	4.0	5.9	5.3	4.0	stbl
Cape May Warbler	1.8	1.6	2.5	2.0	2.8	1.8	2.2	3.0	2.0	1.7	1.8	1.4	2.3	2.7	2.0	1.7	stbl
Black-throated Blue Warbler	0.6	0.8	0.9	0.6	0.8	0.8	1.0	0.9	1.2	0.7	0.8	0.5	0.4	1.7	0.8	0.6	stbl
Yellow-rumped Warbler	11.7	13.9	15.2	12.9	13.7	15.2	15.7	15.9	15.0	14.5	11.3	11.7	12.7	15.6	12.8	11.9	invu**
Black-throated Green Warbler	3.8	5.0	5.7	6.4	6.3	6.1	5.9	6.7	6.6	5.8	5.8	5.5	5.9	6.5	5.6	6.0	incr***
Blackburnian Warbler	2.3	3.5	2.8	3.4	3.8	2.9	3.3	4.2	4.0	2.0	2.6	2.4	1.8	3.6	3.2	2.7	stbl
Yellow-throated Warbler ^b										0.3	0.4	0.4	0.4	0.1	0.1	0.3	0.4
Pine Warbler	1.2	2.1	3.1	2.0	2.1	3.0	2.8	3.0	2.0	2.8	1.7	2.1	2.9	2.8	1.9	2.2	incr**
Prairie Warbler ^b										0.0	0.0	0.2	0.0	0.1	0.1	0.0	0.0
Palm Warbler	4.6	5.6	5.9	5.8	4.8	6.2	5.9	6.1	6.8	4.6	4.5	3.9	4.7	7.5	5.4	5.2	stbl
Bay-breasted Warbler	1.6	1.8	2.7	2.6	2.4	1.8	1.7	2.1	2.4	1.5	1.4	1.1	1.9	2.0	1.8	1.7	stbl
Blackpoll Warbler	1.5	1.6	2.9	1.8	2.6	1.6	2.1	2.3	2.1	2.2	1.9	1.3	1.4	2.2	2.0	2.3	stbl
Cerulean Warbler	0.5	0.6	0.8	0.9	0.8	0.6	0.7	0.7	0.4	0.3	0.6	0.6	0.7	0.7	0.6	0.3	invu*
Black-and-white Warbler	4.5	6.2	6.7	6.6	7.0	6.7	6.4	7.4	7.2	5.2	4.9	4.7	5.5	7.0	5.0	5.2	invu*
American Redstart	7.3	9.1	10.8	9.8	9.7	10.0	10.1	10.6	10.9	9.1	8.9	8.0	9.2	11.0	10.3	10.5	incr**
Prothonotary Warbler	0.4	0.4	0.4	0.6	0.7	0.7	0.6	0.9	0.3	0.7	0.7	0.5	0.5	0.5	0.5	0.2	stbl
Worm-eating Warbler ^b										0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1
Ovenbird	8.4	10.0	10.2	9.8	11.1	10.9	10.3	11.0	11.0	10.9	8.8	9.6	10.8	10.6	11.4	10.4	incr***
Northern Waterthrush	2.7	3.4	3.6	3.5	3.2	3.5	3.2	4.0	3.8	3.4	2.8	2.9	3.0	3.4	2.8	3.1	stbl
Louisiana Waterthrush	0.5	0.4	0.6	0.5	0.7	0.4	0.3	0.4	0.3	0.3	0.4	0.5	0.1	0.3	0.1	0.1	decr***
Kentucky Warbler	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.2	stbl
Connecticut Warbler	0.6	0.5	0.7	0.6	0.6	0.6	0.9	1.1	0.9	0.5	0.4	0.4	0.4	0.7	0.5	0.4	stbl
Mourning Warbler	1.8	2.6	2.8	3.1	3.6	3.1	3.4	4.2	4.0	3.5	2.5	2.6	2.5	3.8	3.0	3.3	incr***
Common Yellowthroat	16.4	16.4	19.6	18.2	19.7	18.3	17.8	17.9	17.6	17.4	16.0	15.6	18.2	17.5	18.4	17.7	stbl
Hooded Warbler	0.2	0.3	0.2	0.1	0.3	0.2	0.3	0.1	0.3	0.5	0.2	0.3	0.2	0.8	0.1	0.4	stbl
Wilson's Warbler	1.7	2.1	2.2	2.8	2.2	1.6	2.1	3.0	3.3	1.7	2.1	1.8	1.2	3.5	3.1	2.1	stbl
Canada Warbler	1.5	1.8	2.3	2.5	2.2	1.7	2.2	3.4	2.4	1.7	1.8	1.4	1.3	2.1	2.0	1.7	stbl
Yellow-breasted Chat	0.2	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.3	0.2	0.1	0.2	stbl
Scarlet Tanager	5.2	6.3	8.6	8.0	7.8	7.4	7.0	6.4	7.0	8.5	6.0	6.7	8.8	8.7	8.1	6.4	incr***
Northern Cardinal	66.7	71.7	75.2	73.5	72.7	74.2	74.7	70.8	71.8	75.4	76.3	77.2	77.5	74.7	76.9	79.3	incr***
Rose-breasted Grosbeak	16.4	19.6	20.2	19.9	20.0	20.2	21.1	20.1	20.8	18.4	18.7	18.0	21.8	22.9	21.3	23.1	incr***
Indigo Bunting	14.6	15.4	16.6	16.7	17.2	15.5	16.2	16.7	15.5	14.7	16.2	15.6	18.9	18.0	19.6	18.3	incr**
Dickcissel	0.9	1.5	2.6	1.8	0.9	1.0	1.8	1.9	1.0	1.6	1.8	2.5	1.4	1.7	0.8	1.6	invu*
Eastern Towhee	10.7	9.4	11.7	10.6	10.8	10.3	10.6	9.6	9.7	9.2	7.7	8.8	10.4	10.2	9.8	9.1	decr**
American Tree Sparrow	17.4	21.3	20.9	19.8	19.9	22.0	24.6	21.5	20.4	20.0	22.2	22.8	20.9	18.7	18.1	17.1	invu*
Chipping Sparrow	27.5	29.7	31.7	28.5	29.7	30.3	29.2	31.7	31.6	32.2	30.8	32.5	32.7	31.8	33.5	31.7	incr***
Clay-colored Sparrow	2.4	3.1	3.7	3.4	3.5	3.8	3.8	4.1	4.7	4.4	3.4	3.6	3.9	4.3	3.7	5.7	incr***
Field Sparrow	13.9	13.7	16.0	13.0	14.4	13.7	13.0	12.7	12.8	12.9	11.0	11.7	12.3	10.8	11.0	10.2	decr***

Table 2. Continued.

Species	1983-89	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Trend ^a
Vesper Sparrow	7.3	7.3	6.7	6.3	6.1	6.7	6.3	6.6	6.1	5.7	4.0	3.1	3.1	3.8	3.6	4.9	decr***
Lark Sparrow	0.2	0.5	0.5	0.3	0.3	0.5	0.4	0.3	0.2	0.3	0.2	0.3	0.1	0.1	0.2	0.1	invu***
Savannah Sparrow	9.9	11.6	13.5	12.5	12.2	13.0	11.8	12.9	14.0	13.2	10.7	8.8	11.5	10.9	10.7	10.4	invu***
Grasshopper Sparrow	1.5	2.3	4.0	3.4	2.1	1.8	2.0	1.7	1.6	2.3	1.7	1.6	1.6	1.2	1.7	2.0	stbl
Henslow's Sparrow	0.8	0.5	0.8	0.9	0.3	0.4	0.3	0.3	0.4	0.8	0.3	0.5	0.7	0.9	1.7	1.2	ushp***
Le Conte's Sparrow	0.2	0.5	0.7	0.4	0.2	0.5	0.5	0.5	0.3	0.3	0.4	0.2	0.2	0.4	0.4	0.3	stbl
Nelson's Sharp-tailed Sparrow ^b									0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
Fox Sparrow	5.4	6.4	8.9	7.3	7.0	5.9	7.1	5.4	5.3	5.0	6.2	6.8	5.3	5.3	9.0	6.7	stbl
Song Sparrow	40.0	43.8	46.4	45.5	44.0	45.3	46.6	46.0	44.8	43.4	40.2	45.8	42.4	41.5	42.3	42.4	invu**
Lincoln's Sparrow	1.5	1.8	2.4	2.2	1.6	1.8	1.5	2.5	2.6	2.0	2.1	1.5	1.6	2.7	2.5	2.6	incr**
Swamp Sparrow	8.8	9.7	13.8	10.5	10.5	10.3	10.1	10.0	8.9	9.4	9.0	6.8	8.2	8.1	8.3	9.5	invu*
White-throated Sparrow	14.5	16.1	19.0	18.8	18.0	18.9	21.1	18.6	18.6	19.8	16.5	17.5	18.5	24.0	19.8	20.3	incr***
White-crowned Sparrow	3.9	4.6	4.6	3.7	3.5	3.4	4.5	3.4	5.5	5.0	5.7	4.6	5.6	5.6	5.6	6.7	incr**
Harris' Sparrow	0.5	0.9	0.1	0.5	0.3	0.2	0.2	0.5	0.6	1.0	0.7	0.6	0.8	1.1	0.2	1.0	stbl
Dark-eyed Junco	43.4	43.3	45.8	42.4	44.9	46.0	47.8	42.6	44.5	46.3	48.4	48.9	46.3	46.0	46.7	47.5	incr***
Lapland Longspur	1.1	1.0	1.4	1.0	0.8	0.9	1.1	0.9	1.6	2.2	2.8	2.4	1.7	1.5	1.1	1.2	incr*
Snow Bunting	3.9	2.8	3.4	3.9	3.5	3.2	3.0	4.4	5.3	3.4	4.6	4.4	3.8	3.2	2.6	3.1	stbl
Bobolink	8.0	6.9	9.0	7.9	9.0	8.1	7.2	9.0	9.4	7.9	6.5	5.2	5.9	7.1	6.9	6.2	decr*
Red-winged Blackbird	53.4	56.4	54.9	55.6	52.5	54.1	51.8	55.0	54.9	52.6	50.2	53.1	51.0	52.5	52.0	54.7	stbl
Eastern Meadowlark	25.9	26.1	28.8	27.2	25.9	25.8	25.8	23.1	22.8	22.2	19.3	18.4	18.2	15.0	15.3	14.2	decr***
Western Meadowlark	7.6	5.3	6.8	6.2	5.2	4.4	3.8	3.5	2.7	3.5	2.1	2.4	1.7	2.4	1.1	1.2	decr***
Yellow-headed Blackbird	4.2	4.5	5.4	4.5	4.0	4.7	3.8	3.9	4.4	4.5	3.6	3.0	3.2	3.9	3.5	4.0	stbl
Rusty Blackbird	2.5	1.9	2.9	2.7	2.5	2.3	1.9	2.0	2.0	2.5	2.6	1.7	1.5	1.4	2.2	1.7	decr*
Brewer's Blackbird	6.4	7.4	7.7	6.4	6.1	5.3	4.6	4.3	3.3	4.4	3.8	4.3	3.8	2.9	3.9	3.1	decr***
Common Grackle	54.8	52.9	51.9	53.8	47.6	50.2	46.6	46.7	45.5	44.1	41.5	43.3	40.3	41.1	41.1	41.3	decr***
Brown-headed Cowbird	26.0	28.5	28.8	26.9	29.1	27.4	25.7	26.7	26.1	27.0	26.0	26.3	24.6	24.1	27.6	27.6	stbl
Orchard Oriole	0.5	0.5	0.9	0.8	1.0	0.6	0.7	1.0	0.9	0.7	1.3	1.4	1.6	2.8	3.2	3.2	incr***
Baltimore Oriole	18.9	19.6	19.1	18.2	18.6	18.4	18.1	18.5	17.8	17.2	17.2	16.5	20.0	20.8	20.0	20.3	ushp**
Pine Grosbeak	1.7	4.5	0.6	0.9	0.6	0.6	0.9	1.1	1.6	1.6	0.6	0.7	1.1	0.9	0.6	1.6	stbl
Purple Finch	22.3	25.3	22.0	20.9	22.1	16.6	22.4	20.5	19.9	16.9	20.6	19.3	20.0	13.1	16.5	24.5	decr*
House Finch ^c			19.6	44.6	53.9	61.5	60.6	60.4	57.6	61.5	63.4	63.9	59.0	56.1	58.0	58.5	incr*
Red Crossbill	1.3	1.6	0.7	0.3	0.6	0.4	0.7	0.8	0.6	0.5	0.5	0.2	0.8	0.2	0.1	0.2	decr*
White-winged Crossbill	0.6	3.4	0.1	0.2	0.5	0.4	0.4	0.9	0.8	0.2	0.2	0.2	0.7	0.3	0.3	0.2	stbl
Common Redpoll	3.8	8.0	3.1	7.6	2.3	5.9	2.6	12.5	3.4	6.8	3.0	5.6	2.2	3.3	0.7	8.2	stbl
Pine Siskin	16.8	33.6	9.0	11.0	12.5	9.0	11.4	20.1	9.2	9.2	11.4	10.1	13.3	7.3	1.4	9.3	stbl
American Goldfinch	72.9	77.7	75.8	71.9	77.3	73.6	75.4	75.7	75.3	77.0	77.7	80.1	82.2	79.5	82.7	82.8	incr***
Evening Grosbeak	11.7	7.9	5.7	5.4	6.0	5.8	6.4	6.8	5.5	5.5	4.3	5.3	6.1	4.9	4.6	5.7	decr***
House Sparrow	84.2	82.1	81.5	81.6	79.1	80.9	80.3	74.8	75.1	74.0	73.8	72.6	70.1	72.0	70.4	decr***	

^a stbl = stable: regression equations with $P \geq 0.05$, incr = increasing: significant linear regressions with positive slopes, decr = decreasing: significant linear regressions with negative slopes, ushp = u-shaped: significant u-shaped quadratic trend, invu = inverted-u: significant inverted u-shaped quadratic trend.* = $0.05 > P \geq 0.01$, ** = $0.01 > P \geq 0.001$, *** = $P < 0.001$.

^b Species added to checklist in 1997.

^c House Finch was added to checklist in 1991.